

Meteorological record of voluntary observers and army post surgeons—March, 1885.

Temperature					Temperature					Temperature					Temperature				
Station.	Mean.	Maximum.	Minimum.	Rainfall.	Station.	Mean.	Maximum.	Minimum.	Rainfall.	Station.	Mean.	Maximum.	Minimum.	Rainfall.	Station.	Mean.	Maximum.	Minimum.	Rainfall.
Fort Preble, Me.	23.8	49	-7	2.49	Milledgeville, Ga.	49.8	75	24	3.32	Lafayette, Ind.	29.6	64	-3	0.46	Superior, Nebr.	35.4	68	13	.....
Orono, Me.	19.2	49	-21	2.78	Forsyth, Ga.	51.7	70	32	3.79	Fort Wayne, Ind.	31.0	57	1	0.50	Madison, Nebr.	32.3	60	7	0.59
Cornish, Me.	21.1	48	-10	2.00	Quitman, Ga.	77	34	3.70	Logansport, Ind.	29.6	64	-3	2.15	Stockham, Nebr.	.....	70	.....	0.45	
Gardiner, Me.	20.8	50	-14	2.18	Athens, Ga.	47.4	70	20	3.37	Laconia, Ind.	74	11	0.77	Ashland, Nebr.	.....	68	.....	0.31	
Coutocook, N. H.	23.7	56	-16	0.82	Manatee, Fla.	65.2	92	45	4.20	Sunman, Ind.	32.9	68	0	0.35	Fairbury, Nebr.	.....	68	14	0.75
Charlotte, Vt.	19.5	50	-14	0.50	Archer, Fla.	58.7	79	33	3.75	Jeffersonville, Ind.	36.4	74	13	1.13	Independence, Mo.	37.2	63	12	0.40
Burlington, Vt.	19.3	48	-17	0.86	Mayport, Fla.	59.9	85	40	3.02	Guilford, Ind.	32.7	70	0	0.37	Greenfield, Mo.	44.0	70	20	0.50
Woodstock, Vt.	17.8	52	-27	1.55	Newport, Fla.	54.7	79	32	4.48	Spiceland, Ind.	30.1	64	1	0.72	Pierce City, Mo.	41.2	79	17	1.90
Dorset, Vt.	19.8	53	-16	1.44	Limona, Fla.	64.4	85	39	1.46	La Grange, Ind.	23.4	.....	8	0.83	Springfield, Mo.	42.1	76	11	2.10
Lunenburg, Vt.	15.6	48	-24	2.25	Fort Barrancas, Fla.	57.0	79	31	8.55	Vevay, Ind.	35.7	75	8	1.57	Conception, Mo.	36.7	63	2	0.10
Newport, Vt.	16.0	48	-30	2.42	Saint Augustine, Fla.	58.0	82	34	3.37	Wabash, Ind.	30.0	60	2	0.92	Centerville, Mo.	.....	76	0	1.49
Stratford, Vt.	17.9	44	-18	1.80	Green Springs, Ala.	48.2	74	24	2.61	Monticello, Ind.	26.8	59	4	0.60	Carthage, Mo.	.....	79	20	1.45
Amherst, Mass.	25.8	54	3	1.25	Mt. Vernon B'ks, Ala.	55.5	80	25	7.89	Connersville, Ind.	30.9	66	3	0.72	Chamais, Mo.	40.6	76	18	0.51
Milton, Mass.	.....	55	5	1.40	Birmingham, Ala.	47.8	74	21	.....	Franklin, Ind.	32.2	67	4	0.42	Warrenton, Mo.	39.6	70	17	.....
New Bedford, Mass.	27.7	54	2	1.39	Greensboro, Ala.	51.1	75	28	2.92	Farmdale, Ind.	28.6	60	-2	0.49	Glasgow, Mo.	36.5	68	14	0.34
Somerset, Mass.	28.2	58	0	1.14	Point Pleasant, La.	51.3	78	30	5.16	Mauzy, Ind.	29.0	63	-2	0.83	Houstonia, Mo.	39.8	70	14	0.86
Leicester, Mass.	21.6	53	-1	0.92	Luling, La.	.....	81	34	5.79	Knightstown, Ind.	29.9	67	-2	0.49	Ironton, Mo.	40.9	78	22	1.55
Williamstown, Mass.	17.4	48	-14	0.96	Grand Coteau, La.	59.4	78	30	5.37	Richmond, Ind.	30.0	64	-2	0.71	Mascoutah, Ill.	40.3	74	10	0.56
Westborough, Mass.	27.3	60	0	1.05	New Ulm, Tex.	58.0	80	35	2.14	Columbus, Ind.	33.6	71	6	0.32	Kirksville, Mo.	35.1	63	6	0.01
Fall River, Mass.	27.4	56	5	1.20	Cleburne, Tex.	49.2	79	29	2.82	Marengo, Ind.	38.6	78	12	0.75	Curryville, Mo.	.....	74	10	0.62
Princeton, Mass.	21.0	49	-4	1.41	Fort Brown, Tex.	66.1	85	47	0.55	Blue Lick, Ind.	35.4	73	10	1.02	Lexington, Mo.	36.9	67	12	0.42
Rowe, Mass.	18.4	51	-10	1.30	Clarksville, Tex.	54.9	80	31	3.50	Huntingburg, Ind.	30.7	71	14	0.98	Louisiana, Mo.	35.7	70	12	0.10
Taunton, Mass.	28.3	57	4	1.07	Comfort, Tex.	.....	83	30	1.28	Princeton, Ind.	35.4	75	6	0.40	Mexico, Mo.	.....	66	12	0.38
Worcester, Mass.	23.5	51	1	0.90	Fort Concho, Tex.	55.5	83	30	1.35	Worthington, Ind.	34.4	69	7	0.30	Miami, Mo.	39.0	72	13	0.45
Providence, R. I.	20.4	59	2	1.02	Huntsville, Tex.	57	77	34	4.51	Degonia Springs, Ind.	37.9	75	15	0.83	Oregon, Mo.	37.1	75	11	0.40
Nayatt Point, R. I.	.....	68	2	0.83	Austria, Tex.	59.2	70	41	2.22	Salem, Ind.	34.9	72	5	1.85	Pleasant Hill, Mo.	.....	67	14	0.50
Hartford, Conn.	26.7	56	-1	0.93	Mount Ida, Ark.	48.4	78	22	2.30	Corydon, Ind.	37.2	73	11	0.87	Steelsville, Mo.	.....	80	10	0.88
Norfolk, Conn.	19.7	52	-10	1.57	Lead Hill, Ark.	45.5	84	18	3.00	Mattson, Ill.	34.5	70	8	0.58	Sedalia, Mo.	39.8	72	13	0.65
Southington, Conn.	25.9	58	0	0.82	Helvetia, W. Va.	32.0	65	4	2.54	Bunker Hill, Ill.	36.0	75	11	0.42	Sherill, Mo.	41.0	79	14	1.91
North Colebrook, Conn.	17.5	52	-6	2.70	Austin, Tenn.	43.2	70	16	1.59	Collinsville, Ill.	38.3	74	12	0.45	Atchison, Kans.	38.7	70	17	0.25
Mountainville, N. Y.	25.3	54	-4	0.70	Ashwood, Tenn.	44.4	74	16	2.70	South Evanston, Ill.	24.6	.....	2	0.46	Independence, Kans.	43.1	78	21	1.31
Humphrey, N. Y.	18.1	45	-12	1.39	Greenville, Tenn.	41.0	72	14	4.30	Sycamore, Ill.	25.7	.....	-1	0.55	Yates Centre, Kans.	40.4	77	14	1.16
Palermo, N. Y.	17.1	48	-19	0.65	Maryville, Tenn.	44.0	70	20	2.55	Sandwich, Ill.	29.0	61	-3	0.62	Wyandotte, Kans.	44.0	72	16	0.48
Amburn, N. Y.	18.9	50	-10	1.33	Andersonville, Tenn.	41.0	62	14	2.48	Wilton Centre, Ill.	26.7	63	-4	0.63	Salina, Kans.	47.4	76	16	0.03
Menand, N. Y.	22.5	45	-6	0.84	Careyville, Tenn.	41.0	71	21	2.38	Charleston, Ill.	.....	64	0	0.12	Emporia, Kans.	41.2	75	14	0.74
Ithaca, N. Y.	21.4	52	-14	0.49	Sweetwater, Tenn.	40.0	70	12	2.23	Peoria, Ill.	34.1	64	10	0.42	Clay Centre, Kans.	40.7	75	12	0.38
Le Roy, N. Y.	21.5	53	-7	0.83	Parksville, Tenn.	43.0	71	21	2.49	Swanwick, Ill.	38.2	77	12	0.92	Fort Scott, Kans.	43.0	78	18	1.75
Cooperstown, N. Y.	18.3	54	-14	0.55	Grief, Tenn.	41.0	74	17	2.21	Anna, Ill.	40.7	79	13	1.43	W. Leavenworth, Kans.	.....	72	16	1.20
North Volney, N. Y.	18.6	50	-9	0.90	Fostoria, Tenn.	40.0	72	16	1.30	Rockford, Ill.	26.8	54	-2	0.20	Maud, Kans.	42.5	78	21	1.03
Factoryville, N. Y.	21.8	54	-10	0.33	Cookville, Tenn.	40.1	72	14	2.26	Biley, Ill.	24.8	56	4	0.29	Wellington, Kans.	41.6	80	18	2.02
White Plains, N. Y.	29.9	53	1	2.30	Manchester, Tenn.	39.0	72	6	2.88	Fort Brady, Mich.	7.3	39	-27	1.44	Allison, Kans.	37.8	77	14	0.68
Fort Niagara, N. Y.	21.5	48	-3	0.73	Riddletown, Tenn.	40.0	73	17	2.17	Hudson, Mich.	20.6	50	-10	0.25	Topeka, Kans.	40.6	77	14	1.02
Fort Columbus, N. Y.	29.5	56	-7	1.73	Beech Grove, Tenn.	40.0	72	5	2.91	Byrne, Mich.	12.4	49	-34	2.32	Lawrence, Kans.	46.0	73	15	0.87
West Point, N. Y.	26.7	53	5	2.40	Flat Creek, Tenn.	42.0	71	10	2.53	Manistiquie, Mich.	12.6	50	-29	3.28	Elk Falls, Kans.	.....	18	1.00	
Madison Barracks, N. Y.	18.0	40	-21	0.92	Florence Station, Tenn.	43.0	72	18	3.21	Moorestown, Mich.	14.3	45	-32	1.39	Manhattan, Kans.	37.9	65	12	0.35
Plattsburg Barracks, N. Y.	16.6	46	-22	0.30	Howell, Tenn.	43.0	73	15	2.12	Ann Arbor, Mich.	21.7	40	-6	1.28	Sherlock, Kans.	32.3	74	17	0.80
Fort Hamilton, N. Y.	30.1	55	5	0.43	Hardison's Mills, Tenn.	42.0	70	9	2.71	Birmingham, Mich.	21.0	40	-13	0.89	Stirling, Kans.	37.5	82	14	0.38
David's Island, N. Y.	28.9	53	5	0.28	Hurricane Switch, Tenn.	42.0	67	15	2.52	Ionia, Mich.	21.5	48	-13	1.21	Holton, Kans.	37.5	70	16	0.69
Phillipsburg, N. J.	31.3	65	2	0.78	Pula-ki, Tenn.	45.0	78	18	1.75	Traverse City, Mich.	46	24	-24	2.29	Richardton, Dak.	27.8	48	6	1.00
Somersville, N. J.	29.0	58	6	0.53	Kingston Springs, Tenn.	42.0	78	9	2.36	Kalamazoo, Mich.	45	22	-1.48	Fort Yates, Dak.	28.8	56	10	0.18	
Vineland, N. J.	31.8	94	7	0.91	Dickson, Tenn.	41.0	75	0	1.83	Harrisonaville, Mich.	48	8	-1.07	Fort Totten, Dak.	32.7	39	-20	0.28	
Moorestown, N. J.	29.7	93	6	1.08	Sailors Rest, Tenn.	40.0	70	18	2.18	Thornville, Mich.	49	11	-1.15	Fort Sisseton, Dak.	22.7	39	-16	0.40	
Dover, N. J.	25.7	94	3	1.45	Paris, Tenn.	43.0	74	16	1.65	Swartz Creek, Mich.	20.0	45	-13	0.95	Fort Sully, Dak.	37.0	49	3	0.15
Princeton, N. J.	29.2	88	4	1.31	Savannah, Tenn.	44.0	73	20	1.87	Lawling, Mich.	21.6	46	-10	0.60	Fort Randall, Dak.	34.6	68	3	0.13
South Orange, N. J.	28.9	82	8	0.81	McKenzie, Tenn.	43.0	74	12	1.30	Northport, Mich.	34	-18	0.30	Fort Pembina, Dak.	34.6	68	0	0.13	
Salem, N. J.	33.0	65	13	1.00	Henderson, Tenn.	45.0	75	15	3.06	Embarras, Wis.	34	-15	1.40	Fort A. Lincoln, Dak.	44.4	41	-25	0.75	
Wellesborough, Pa.	22.4	52	-12	1.15	Dresden, Tenn.	42.0	70	4	1.10	Sussex, Wis.	22.0	51	-8	1.02	Fort Meade, Dak.	31.9	64	-1	0.52
Fallingston, Pa.	29.1	59	7	1.19	Milan, Tenn.	43.7	78	5	1.94	Beloit, Wis.	26.3	36	-3	0.21	Verbert, Dak.	27.6	70	-24	0.71
Grampian Hills, Pa.	20.1	48	-10	1.34	Trenton, Tenn.	42													

by Mount View, Union Springs, Florence, Centre, Tuscaloosa, and Birmingham on the 12th; on the 28th by Jacksonville and Clintonville; on the 27th by Mount Willing.

All stations report heavy dew or fog on the 14th.

The 5th, 6th, 10th, 11th, 17th, and 19th were hazy days.

The last general frosts of the month were on the 29th and 30th. Ice formed in north Alabama on the 8th, 9th, 10th, 16th, 18th, 20th, 23d, and 24th; in central Alabama on the 8th, 9th, 10th, 23d, and 24th; in south Alabama on the 9th and 23d.

Lunar halos were reported on the 3d and 24th by Chattanooga, on the 24th by Mobile, and on the 27th by Montgomery.

Solar halos were reported on the 3d and 23d by Chattanooga.

The rosy sunsets still attract attention.

The following meteorological summary for March, 1885, is taken from the report of Hon. J. T. Henderson, Commissioner of Agriculture for Georgia.

Districts.	Temperature.			Precipitation.
	Highest.	Lowest.	Mean.	
Northern Georgia.....	72.0	12.0	45.2	3.09
Central Georgia.....	75.0	24.0	49.7	2.95
Southern Georgia.....	82.0	28.0	53.5	3.51
State.....	82.0	12.0	49.5	3.18

The following meteorological summary for March, 1885, is from the report of Mr. Charles F. Mills, director of the "Illinois Weather Service."

Districts.	Temperature.			Precipitation.
	Highest.	Lowest.	Mean.	
Northern counties.....	64.0	-4.3	30.6	0.38
Central counties.....	75.0	8.0	34.9	0.28
Southern counties.....	80.0	8.0	38.9	0.48
State.....	80.0	-4.3	34.8	0.48

The following meteorological summary and accompanying remarks are from the March, 1885, report of the "Indiana Volunteer Weather Service," under direction of Professor W. H. Ragan, of De Pauw University, Greencastle:

Districts.	Temperature.			Precipitation.
	Highest.	Lowest.	Monthly mean.	
Northern counties.....	64.0	-10.0	26.9	0.95
Central counties.....	67.0	-3.0	30.6	0.65
Southern counties.....	78.0	0.0	36.0	0.81
State.....	78.0	-10.0	31.2	0.80

Rains occurred on the 10th in southern counties; 11th, in southern and central counties; 12th, 14th, 30th, in all sections and on the 31st, in the central counties.

Snows were reported in all sections on the 1st, 6th, 7th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 28th, 29th, generally very light.

The heaviest rains, and in many counties in the centre and south, thunderstorms, attended the passage of the low of the 14th. This low first appeared on the 13th, at midnight, in Manitoba, and moved southeast until south of Lake Superior, then east. It was central a little north of Alpena, Michigan, on the night of the 14th, and is not shown on the map of the 16th. A high barometer followed which was central north of Dakota on the 16th and moving slowly southeast produced the lowest temperatures of the month at nearly all stations, on the morning of the 20th. The highest temperatures were recorded on the 31st, attending a low that originated west of and near Lake Michigan on the 30th, and passed to the northeast, being central north of the lakes on the morning of the 31st.

From all stations the temperature is reported as having been far below the normal and the precipitation extraordinarily small.

No storm centre passed across the state during the month, and we had consequent immunity from dangerous storms of any kind.

The average wind velocity at Greencastle was nearly ten miles per hour, the total being 7,091 miles, which we expect will be found from future observations to be much below the normal. The total velocity at Indianapolis was 4,990 miles.

Coming as the prolongation of an unusually cold winter the low temperature of March was felt severely. The average temperature for the four

months at Greencastle was 25°.3, which is that normal for the period covered about three or four hundred miles further north.

At Indianapolis eleven Marches corresponded substantially with the preceding winters as to temperature, and two did not; ten agreed with February and three did not; at Logansport the same comparison gives eighteen to five and fifteen to eight; at Spiceland, fourteen to eight and fourteen to eight; and at Vevay, fifteen to six and fifteen to six. This substantial agreement of succeeding months, if well established, will become of great importance, as we view it.

Observations continued at Saint Louis, Missouri, for forty-eight years show nine winters, the average temperature of which was from 4° to 7° above the normal, twenty-six with a departure of 2° or less, and eleven from 3° to 8° below. The warmest was that of 1844-'45, mean 40°.4; and the coldest 1884-'85, mean 25°.1.

The following meteorological summary and accompanying remarks are from the March, 1885, report of the "Indiana Weather Service," under direction of Prof. H. A. Huston, of Purdue University, Lafayette:

Districts.	Temperature.			Precipitation.
	Highest.	Lowest.	Mean.	
Northern counties.....	64.0	-9.5	27.3	0.82
Central counties.....	69.0	-3.0	30.8	0.60
Southern counties.....	78.0	5.0	35.8	0.96
State.....	78.0	-9.5	31.3	0.79

The mean temperature of the state for March, 31°.29, was 8°.51 below that for last year, 8°.24 below the mean of fourteen years at Indianapolis, 5°.95 below the mean of nine years at Wabash, 5°.48 below the mean of three years at Worthington, 12°.95 below the mean of seven years at Blue Lick, 9°.05 below the mean of twenty-six years at Logansport, and 4°.50 below the mean of six years at this station.

The mean precipitation for the state, 0.79 inches, was 1.95 below that of last year; 3.09 below the mean of fourteen years at Indianapolis; 2.39 below the mean of nine years at Wabash; 1.02 below the mean of three years at Worthington; 2.66 below the mean of twenty-six years at Logansport, and 1.64 inches below the mean of six years at this station.

The mean snowfall for the state, 4.92 inches, is 0.81 inch greater than that of last year.

The ranges of temperature and pressure are less than for last month.

Eleven lunar and two solar haloes are reported. The dates vary widely. On the morning of the 15th the wind reached a velocity of 44 miles per hour at this station. The month has been remarkable for low temperatures and slight rainfall.

The following is taken from the March, 1885, report of the "Louisiana Weather Service," under direction of Mr. Robert S. Day:

The month was abnormally cold, frost being general throughout the greater portion of the state with each cold wave. The mean temperature at New Orleans and Shreveport was the lowest on record for March since the Signal Service was established. The precipitation was not excessive, being about the average. While very backward, the spring has been so far favorable to farm work preparatory to staple crops. The land everywhere is said to break well and to be in excellent condition.

State summary.

Mean temperature for March, 57°; highest temperature, 86°, Cheneyville, 12th, Franklin, 13th; lowest temperature, 27°.8, Delta, 23d; greatest daily range, 53°, Lake Providence, 18th; least daily range, 5°, Vidalia, 15th.

Average rainfall, 4.60 inches; greatest daily rainfall, 2.55 inches, New Iberia, 21st; greatest rainfall for month, 6.99 inches, New Orleans.

Average rainy days, 7.2.

Storms: Delta, 8th, 12th, 18th, 22d; Port Eads, 1st, 4th, 9th, 22d.

Frosts were general in the northern and western parishes on the 3d, 9th, 10th, 16th, 17th, 18th, 23d, 24th, and in the southwestern parishes on the 9th, 10th, and 23d.

The following is an extract from the March, 1885, report of the "Minnesota Weather Service," under direction of Prof. W. W. Payne, of the Carleton College, Northfield:

March, like the three preceding months, opened with a mild temperature and decreasing pressure. The lowest barometrical readings of the month were quite generally noted at 9 p. m. of the 2d, and 7 a. m. of the 3d.

Bird Island, 9 p. m., 2d, 29.608; Saint Paul, 7 a. m., 3d, 29.436; Northfield, 7 a. m., 3d, 29.440; Red Wing, 7 a. m., 3d, 29.450.

This mild term continued until the night of the 14-15th, when the wind, on the approach of a storm centre from the northwest, gradually increased to a gale from the south, causing a rapid rise in the temperature. During the a. m. of the 14th the wind shifted to the northwest causing a rapid fall in the temperature, accompanied by a gradual increase in pressure. From the 14th to the 26th the temperature remained much below the normal, and

the minimum temperatures of the month at all stations were observed as follows:

Saint Paul, —5.8 on the 16th; Minneapolis, —7.0 on the 16th; Northfield, —12.5 on the 21st; Red Wing, (lowest observation, no minimum at station) —6.0 on the 17th; Bird Island, —7.0, on the 16th; Park Rapids, —19.6 on the 16th; Sherburne, (lowest observation, no minimum at station) —4.0 on the 16th.

From the 26th to end of month there was a marked increase in temperature. The snow melted rapidly and the ice in the rivers and lakes began to soften and break up.

The precipitation of the month was much below the normal. At no station was there as much as 1.00 measured. It occurred mostly in the form of snow, and chiefly on the 3d, 5th, 6th, 20th, 25th, 26th and 29th. At the end of the month, with the exception of the extreme northwest portion of the state, there was but little snow on the ground except in heavy drifts.

The following is the March, 1885, report of the "Missouri Weather Service," under direction of Prof. Francis E. Nipher, Saint Louis:

The mean temperature of March has been 40° at the Central station, which is 3° below the normal March temperature. Since 1837 March has been as cold as during last month fourteen times, the coldest occurring in 1843, when it was 12° colder than during the last month.

The lowest temperature reached was 14° on the 22d. This has often been exceeded before. On March 3, 1848, the minimum thermometer read 0°, and on March 14, 1867, it read 1°, and in 1873 it read as low as 13° on the 26th of the month. The temperature fell below 32° on twelve days, and on three days it did not rise above 32°.

The marked feature of the month was the small precipitation, which was 0.49 inch of water, which is less than was ever before observed at Saint Louis in March. The smallest heretofore observed was 0.79 inch, in 1853. The normal March rainfall is 3.74.

In the state the rainfall has also been small, being most in the southern part of the state, where the maximum rainfall reported was 2.1, at Springfield. The northern part of the state was exceedingly dry, the least fall of 0.01 being reported from Kirksville.

The lowest temperature reported was 0°, at Centerville, the observer being quite emphatic in order to avoid the charge of error in reporting. The minimum at other southern stations was, Steelville, 11°; Springfield, 10°; while Greenfield reports 20° and Ironton 22°.

Chamois reports: The temperature has been 2° 31 below the normal of twelve years, and the precipitation 1.87 inch below the average for six years. The severe cold weather of the winter and the dry weather of February and March has injured wheat very much. The wheat having been frozen out of the ground needed rain to reset it. So far as I have examined or heard peaches are all killed.

Lexington reports: wheat not in good condition. Much of it killed or greatly damaged.

Houstonia.—Ground about thawed out. It was frozen three feet or over.

Oregon.—Wheat on bottom-lands good; on up-lands badly damaged by freezing and dry weather.

Glasgow.—Wheat looks badly. Peaches all killed.

Louisiana.—I have nothing encouraging to say about the wheat now in the ground.

Greenfield.—Very little wind for March.

The following is an extract from the March, 1885, report of the "Nebraska Weather Service" under direction of Professor Goodwin D. Swezey, of Doane College, Crete:

The most marked feature of the month has been its lack of rain and snow the snowfall being the smallest, and the precipitation the smallest with one exception—that of March, 1882—of any March since our records were begun in 1878. The number of cloudy days has been correspondingly less, and of clear days more.

The temperature has not been unusual, being about a degree less than the normal; nor has it been at all a marked month in respect to wind, nor to storms of hail, thunder and lightning, or rain and snow.

The average of rain and melted snow, chiefly the latter, for the different sections of the state for March, 1885, is as follows: northeast section, 0.30 inch; southeast section, 0.23; northwest section, 0.34; southwest section, 0.24. Greatest number of days of appreciable precipitation, six, at Omaha.

The following is an extract from the March, 1885, bulletin of the "New England Meteorological Society," under direction of Prof. Winslow Upton, Providence, R. I.:

Summary.

The following discussion of the meteorological conditions for the month is based upon reports from one hundred and three observers, and upon the current publications of the United States Signal Service.

General conditions.—The month has been characterized by a greater amount of fair weather and less wind than is usual in March. Two features especially distinguished the month from the corresponding month of former years, viz., the small precipitation and the low temperature. The latter condition, added to the similar low temperatures of February and the last half of January, closes a season of remarkable severity. At Worcester,

Massachusetts, the continued cold is unexampled in the forty-seven years of continued observation, and it is probable that a similar result would be found at other stations, were the records examined. The observations at Gardiner, Maine, Cambridge and Wooster, Massachusetts, Providence, Rhode Island, and New Haven, Connecticut, which cover a long succession of years, show that the average temperature of the three months, January, February, and March, 1885, was 5° 2 below the average, and of the four months, December, 1884—March, 1885, 3° 3 below the average. The month closed with warmer weather, but the frost in the ground in southern New England extended to a depth of two or three feet, and good sleighing continued in the northern section.

Precipitation.—The precipitation was deficient to a marked degree. Thus, at Lowell, Massachusetts, the amount was but 36 per cent. of the average; at New York, 33 per cent.; at Waltham, Massachusetts, 14 per cent., and at the summit of Mount Washington, 15 per cent. The deficiency is less in the eastern portion of the district, and Eastport, Me., and Saint John, N. B., report an excess. This is due to the heavy precipitation at these stations in the storms of the 2d, 10th, 16th, and 19th. The form was largely snow, the greatest amounts reported being 24.0 inches at Chelsea, Vt., and 34.6 inches at Saint John, N. B. At the close of the month no snow remained on the ground on the southern coast. At Chelsea, Vt., on the 15th, a depth of 43 inches was noted in the woods.

Temperature.—The unusually low average temperature of the month was the result of steady cold with but few single records of great severity. The temperature reached zero, however, at nearly all stations. The month was the coldest March on record at Gardiner, Me., Burlington, Vt., and Worcester, Mass., at which continuous records of nearly half a century have been consulted.

Pressure.—The barometric records of the month were characterized by the usual conditions. Several depressions moved in the vicinity of New England, the chief of which were those of the 1st–3d, 9th–11th, and 14th–16th, which moved from the lake region easterly to the Atlantic. Two depressions which moved northeasterly in the Atlantic were east of the New England coast on the 19th and 23d, respectively. No high areas of unusual extent prevailed, that of the 12th and 13th, between the second and third depressions just mentioned, having been attended by the maximum cold at the majority of stations.

Wind.—The greatest wind velocities of the month were at Block Island, Rhode Island, 46 miles per hour on the 20th; at Eastport, Maine, 47 miles on the 16th; at Blue Hill, Massachusetts, 57 miles on the 10th; at Mount Washington, 128 miles on the 21st, which is greater than any record in January or February, 1885. The total wind movement for the month at Blue Hill, Massachusetts, was 15,852 miles; at Mount Washington, 26,005 miles.

Miscellaneous.—Few auroras were noted; those reported are: at Burlington, Vermont, 15th and 16th; Chelsea, Vermont, 15th; Cambridge, Massachusetts, 20th.

Indications of spring were observed near the close of the month. Robins and bluebirds were first seen at Hartford, Connecticut, on the 26th; at Providence and Newport, Rhode Island, and Worcester, Massachusetts, on the 27th; at Amherst, Massachusetts, on the 28th.

Thunder and lightning were observed at Eastport, Maine, and Saint John, New Brunswick, on the 1st, and at Provincetown, Massachusetts, on the 4th.

The comparison of the observations at Blue Hill observatory and the signal office at Boston shows that at Blue Hill the mean temperature was 4° 0 lower, the mean relative humidity 7 per cent. greater, and the monthly wind movement 54 per cent. greater than at Boston.

Through the kindness of Mr. George F. Pierce, of Boston, the following extract is made from the diary of Col. Samuel Pierce, of Dorchester, referring to the weather in March, 1785:

"27th. We went to meeting in the sley, the snow in many places 2, 3, and 4 foot deep and exceeding hard.

"30. The weather cold and a vast body of snow on the ground.

"31st. There has not been one night this month but it has froze."

The following summary is taken from an advance report of the "Ohio Meteorological Bureau" under direction of Professor T. C. Mendenhall:

Atmospheric pressure.—Mean for the state (reports from twenty-three stations), 30.08; station reporting highest monthly mean, Dayton, 30.14; station reporting lowest monthly mean, Portsmouth, 29.92; station reporting the highest barometric reading, Cincinnati, 30.47 on the 23d; station reporting the lowest barometric reading, Hiram, 29.41 on the 14th; station reporting largest monthly range, Wauseon, .98; station reporting least monthly range, Ironton, .68.

Temperature.—Mean for the state, (reports from thirty-four stations), 28° 3; highest monthly mean, 36° 5 at Ironton; lowest monthly mean, 23° 1, at Hiram; maximum temperature, 76° on the 31st, at Ironton; minimum temperature —9° 8 at Warren, on the 21st; monthly range for the state, 85° 8; stations reporting greatest monthly range, College Hill and Ironton, 70°; station reporting least monthly range, Logan, 57°.

Precipitation.—Average for the state, (reports from thirty-three stations) 0.86 inch; station reporting largest, Quaker City, 1.57 inches; station reporting smallest, Washington Court House, 0.23 inch.

The following is an extract from the March, 1885, report

of the "Tennessee Weather Service," under direction of Hon. A. J. McWhirter, Nashville.

The month of March presented several anomalous features, among which were the low temperature, the small amount of rainfall, the depth of the snowfall, and the absence of high winds.

The mean temperature was $42^{\circ}.57$, $6^{\circ}.43$ below that of March, 1884, and only $8^{\circ}.80$ above that of February, which was abnormally low. The mean of maximum temperatures was $72^{\circ}.63$, and that of the minimum temperatures was $21^{\circ}.4$, respectively $2^{\circ}.37$ and $6^{\circ}.07$ less than the means for the corresponding period of last year. The highest temperature was, with perhaps one or two exceptions, recorded on the 31st, and the lowest was generally recorded on the 18th.

The average precipitation was 2.34 inches, 5.56 inches less than that for March of last year. This was, perhaps, the smallest amount that has fallen during the month of March for many years past, and much of this amount was supplemented by the excessive snowfall. The actual precipitation from rain alone would show a remarkable low amount for the month. The distribution of the precipitation over the state was pretty equal, with a slight preponderance in favor of the eastern division, which received an average of 2.52 inches, the middle division receiving 2.38 inches, and the western division 2.12 inches. Some of the heaviest local rains, and some of the deepest snowfalls, however, were reported from the last-named division. The days of the greatest precipitation were the 7th, 12th, 17th, 21st, 27th, and 28th, the 12th showing the greatest amount for one day. These rains were all general. The 2d, 3d, 10th, 20th, 30th, and 31st were free from precipitation.

The mean depth of snowfall was 6.25 inches, and the greatest depth for the month was 12 inches, reported at Milan. This snowfall was largely in excess of the average for March. The distribution was quite equal throughout the state, the days of the falls being generally the 7th, 8th, 17th, 19th, 21st, and 22d. The heaviest fall was on the 17th.

Frosts were reported at most of the stations on the 2d, 3d, 6th, 8th, 9th, 11th, 16th, 18th, 23d, 24th, 26th, 29th, and 30th, of these the 6th, 8th, 9th, 16th, 18th, 23d, 24th, 26th, and 29th were heavy, the last-named being the heaviest of the month.

Thunder-storms were reported as follows: Greenville, 27th; Maryville, 12th, 5.30 p. m.; Careyville, 27th, sw., 28th, n.; Grief, 12th, 28th; Parksville, 12th, 7.30 p. m., nw., 27th, 28th; Farmingdale, 12th, 28th, w. to e.; Fostoria, 12th, 28th; Manchester, 12th, 28th; Riddleton, 12th; Flat Creek, 12th; Florence Station, 12th, 2.20 p. m., sw.; Howell, 12th, p. m.; Nashville, 12th,

14th; Hardison's Mills, 12th, 14th; Hurricane Switch, 12th, 8.20 a. m., 14th, 9 p. m., nw. and w.; Pulaski, 12th, 28th; Kingston Springs, 28th; Ashwood, 12th; Dickson, 12th, s. to e., 14th, w., 28th; Savannah, 12th; McKenzie, 14th, 26th; Milan, 12th, 14th, 26th; Trenton, 12th, 14th, 26th; Bolivar, 12th, 3 to 6 a. m.; Somerville, 12th, a. m.; Dyersburg, 12th, 26th, latter 9.30 p. m., w. with zigzag lightning; Woodstock, 12th, 2.30 a. m., w.

State summary.

Mean temperature, $42^{\circ}.57$; highest temperature, 78° , on the 31st, at Pulaski, Kingston, Springs, and Somerville; lowest temperature, 5° , on the 18th, at Beech Grove and Milan; range of temperature, 73° ; mean monthly range of temperature, $57^{\circ}.45$; greatest monthly range of temperature, 71° , at Milan; least monthly range of temperature, 44° , at Maryville; mean daily range of temperature, $16^{\circ}.7$; greatest daily range of temperature, 42° , on the 9th, at Covington, and on the 11th at Kingston Springs; least daily range of temperature, 1° , on the 1st, at Andersonville, on the 12th at Cookeville, on the 15th at Sweetwater, and on the 22d at Hardison's Mills and Pulaski; mean of maximum temperatures, $72^{\circ}.63$; mean of minimum temperatures, $15^{\circ}.33$.

Mean depth of rainfall, 2.34 inches; mean daily rainfall, .075 inch; greatest rainfall, 4.30 inches, at Greenville; least rainfall, 1.30 inches, at Fostoria and McKenzie; greatest local daily rainfall, 2.00 inches on the 27th, at Greenville.

Days of greatest rainfall, 7th, 12th, 17th, 21st, 27th, 28th; day of greatest rainfall during month, 12th; average number of days on which rain or snow fell, 10; average number of clear days, 11.1; average number of fair days, 8.5; average number of cloudy days, 11.4; average depth of snowfall during the month, 6.25 inches; greatest depth of snowfall during the month, 12 inches, at Milan; coldest day, 18th; warmest day, 31st.

Prevailing direction of wind, north.

ERRATA.

Respecting the meteor reported by the bark "Innerwick," at Victoria, B. C., published on page 51 in the REVIEW for February, 1885, later reports show the vessel's position to have been N. 37° , E. $170^{\circ} 15'$.

On page 34 of the February REVIEW, under "Ocean ice," in the table showing the limits of ice in former years, the southern limit in February, 1882, should read N. $43^{\circ} 10'$, W. $49^{\circ} 00'$, and the eastern limit N. $46^{\circ} 26'$, W. $41^{\circ} 25'$.